OIPE
OCT 12 2004
PATENT & TRADEMARK OFFICE

TITLE: METHOD AND SYSTEM FOR PROVIDING A MEDIA CHANGE NOTIFICATION ON A COMPUTING SYSTEM
INVENTOR(S): Hank Risan and Edward Vincent Fitzgerald and Raymond C. Salas
Attorney Docket #: MOMI-022

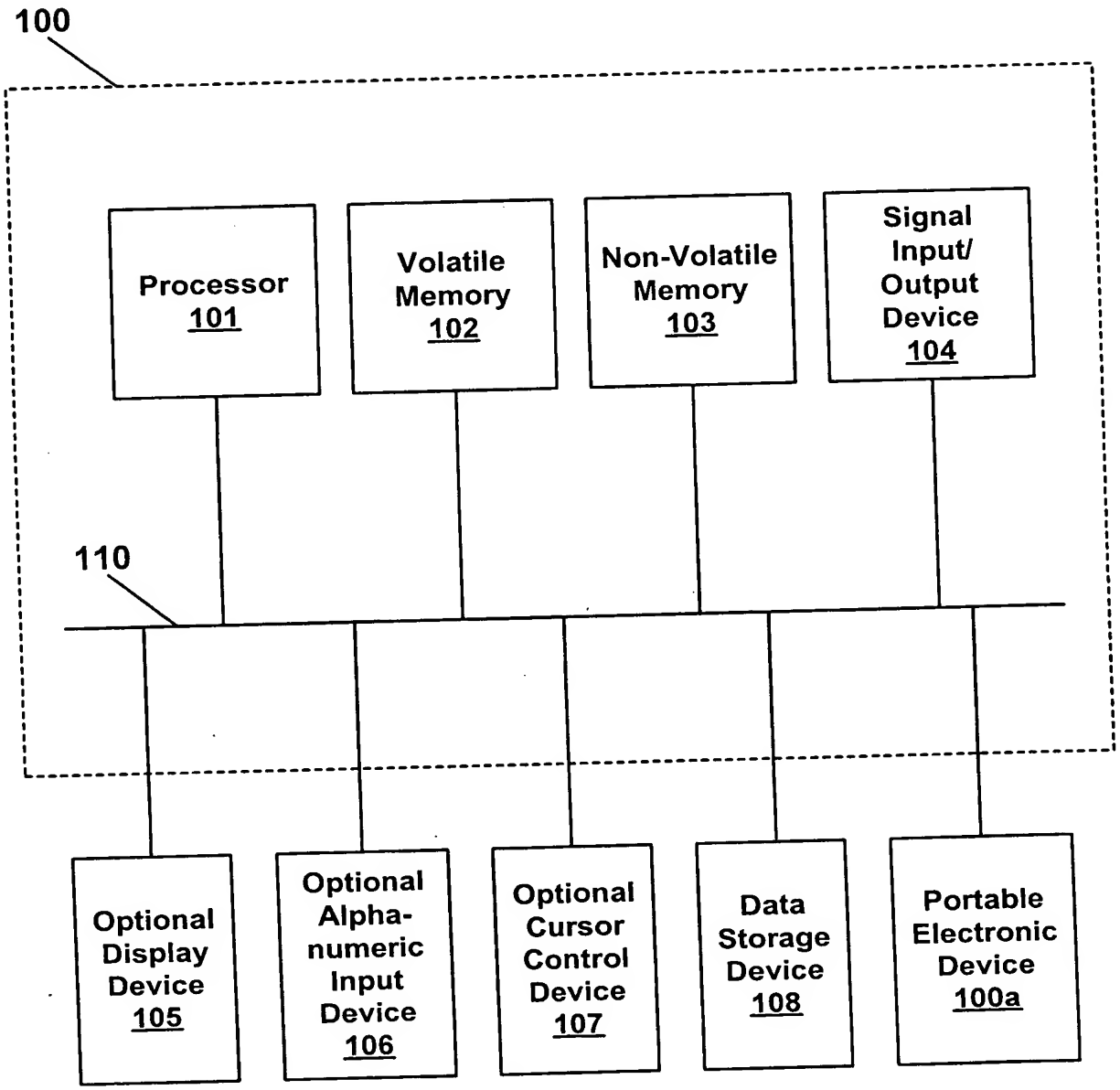

FIG. 1

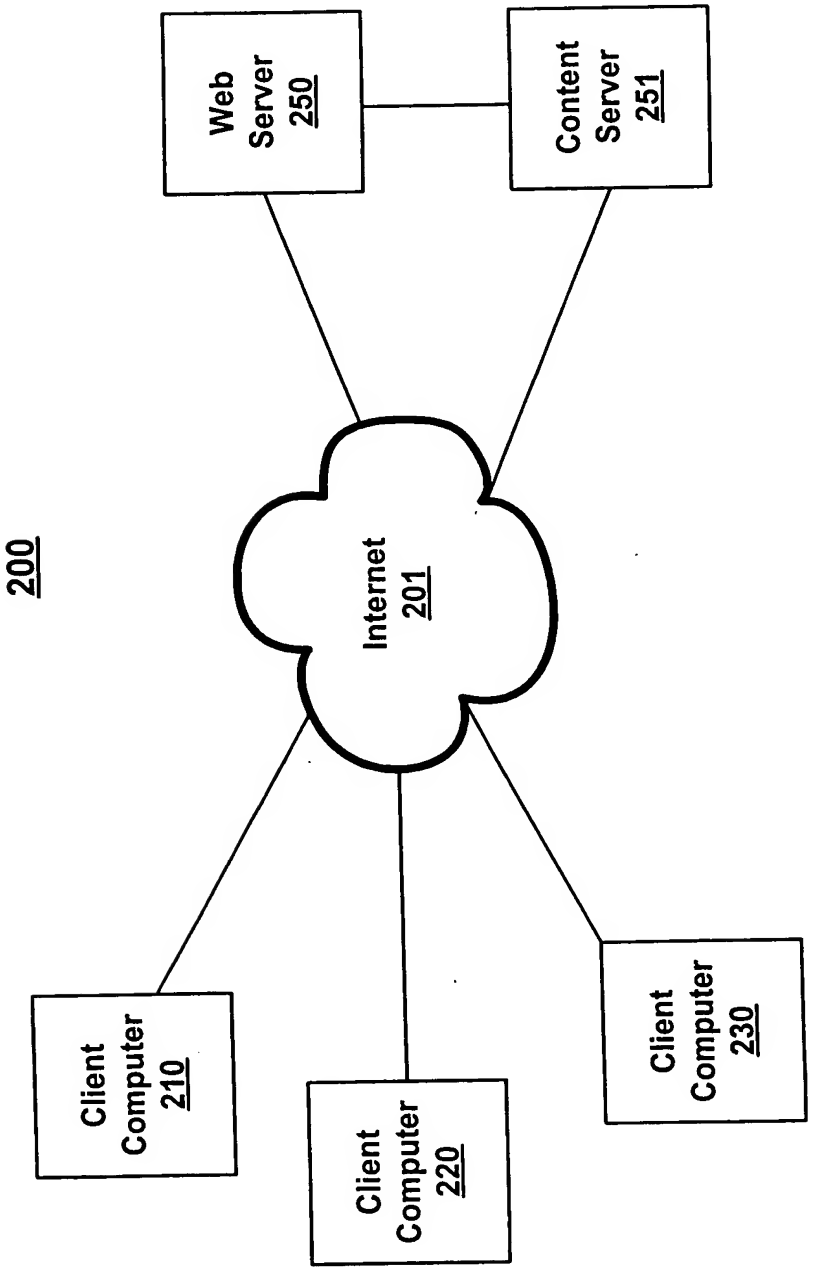
200
Web Server 250
Content Server 251
Internet 201
Client Computer 210
Client Computer 220
Client Computer 230

FIG. 2

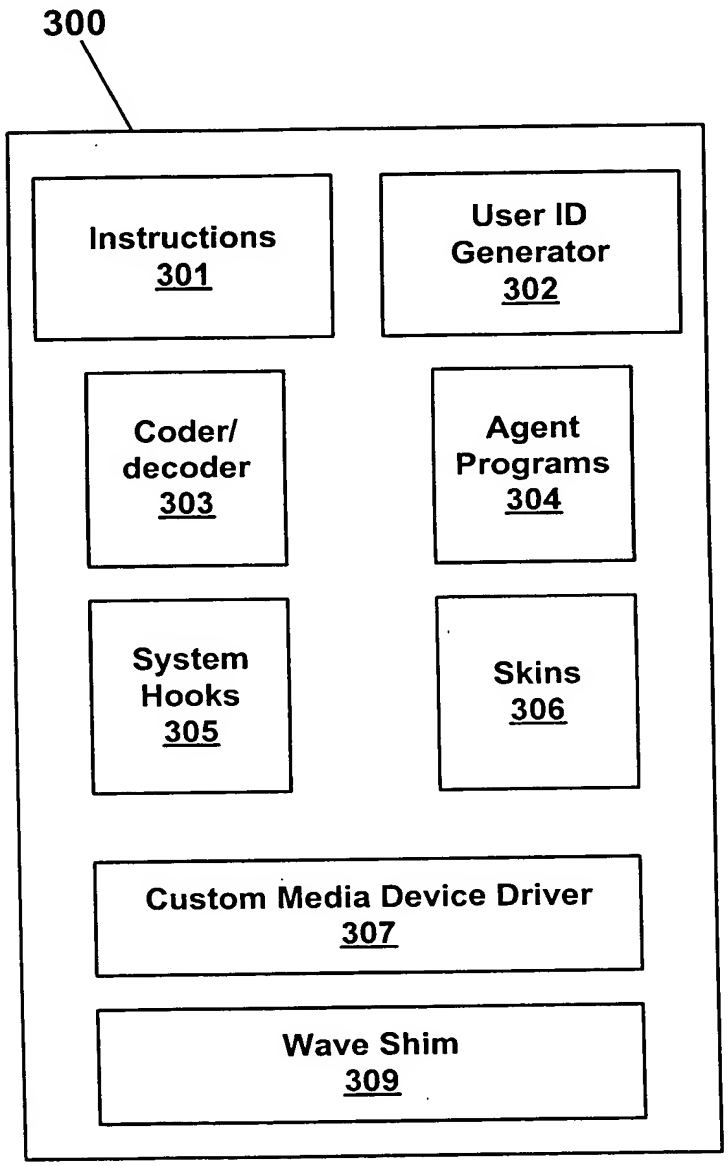
300
Instructions
301
User ID
Generator
302
Coder/
decoder
303
Agent
Programs
304
System
Hooks
305
Skins
306
Custom Media Device Driver
307
Wave Shim
309

FIG. 3

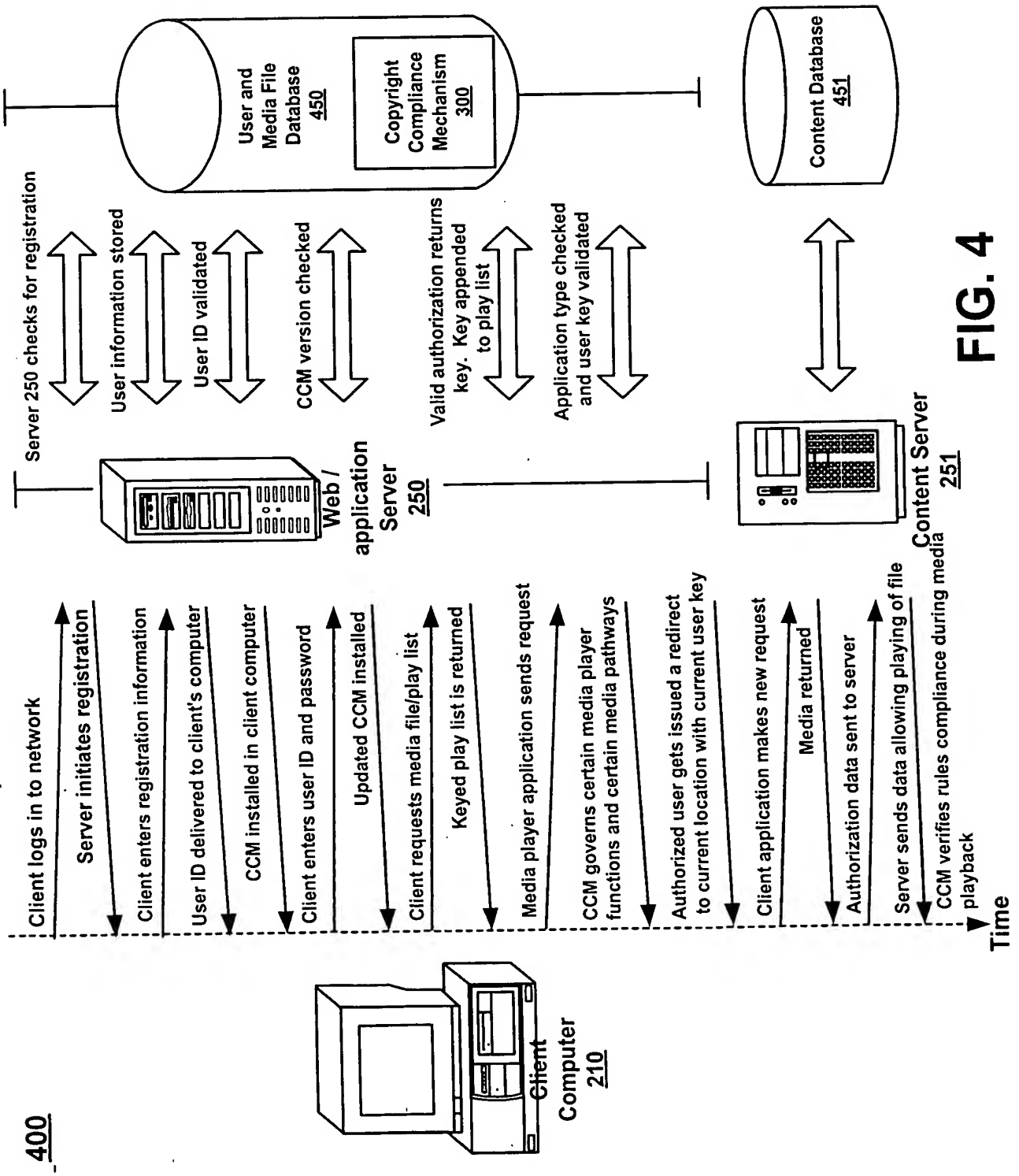
400
Client Computer 210
Web / application Server 250
Content Server 251
User and Media File Database 450
Copyright Compliance Mechanism 300
Content Database 451
Server 250 checks for registration
User information stored
User ID validated
CCM version checked
Valid authorization returns key. Key appended to play list
Application type checked and user key validated
Client logs in to network
Server initiates registration
Client enters registration information
User ID delivered to client's computer
CCM installed in client computer
Client enters user ID and password
Updated CCM installed
Client requests media file/play list
Keyed play list is returned
Media player application sends request
CCM governs certain media player functions and certain media pathways
Authorized user gets issued a redirect to current location with current user key
Client application makes new request
Media returned
Authorization data sent to server
Server sends data allowing playing of file
CCM verifies rules compliance during media playback
Time

FIG. 4

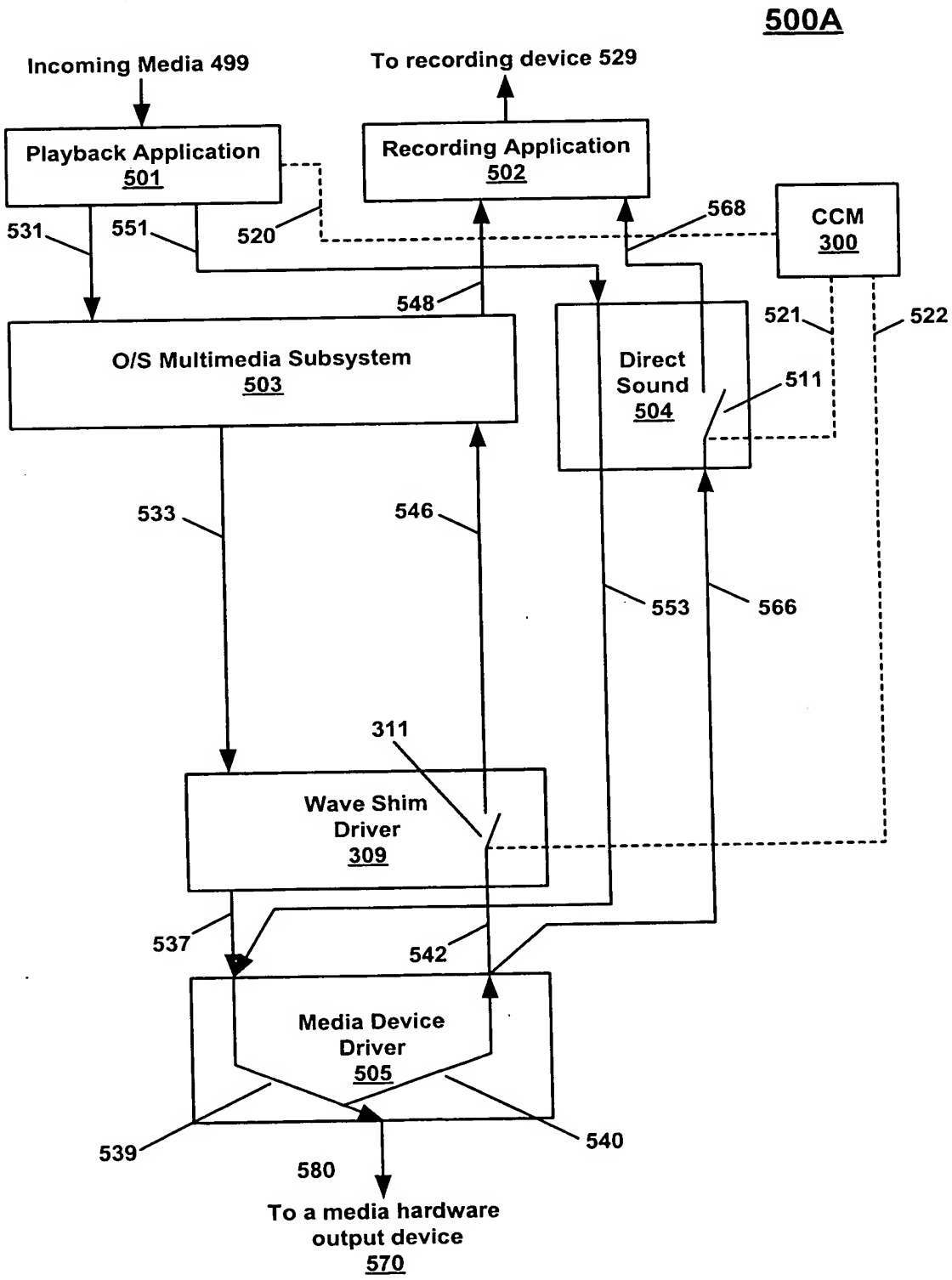
500A
Incoming Media 499
To recording device 529
Playback Application 501
Recording Application 502
CCM 300
531
551
520
568
548
521
522
O/S Multimedia Subsystem 503
Direct Sound 504
511
533
546
553
566
311
Wave Shim Driver 309
537
542
Media Device Driver 505
539
540
580
To a media hardware output device 570

FIG. 5A

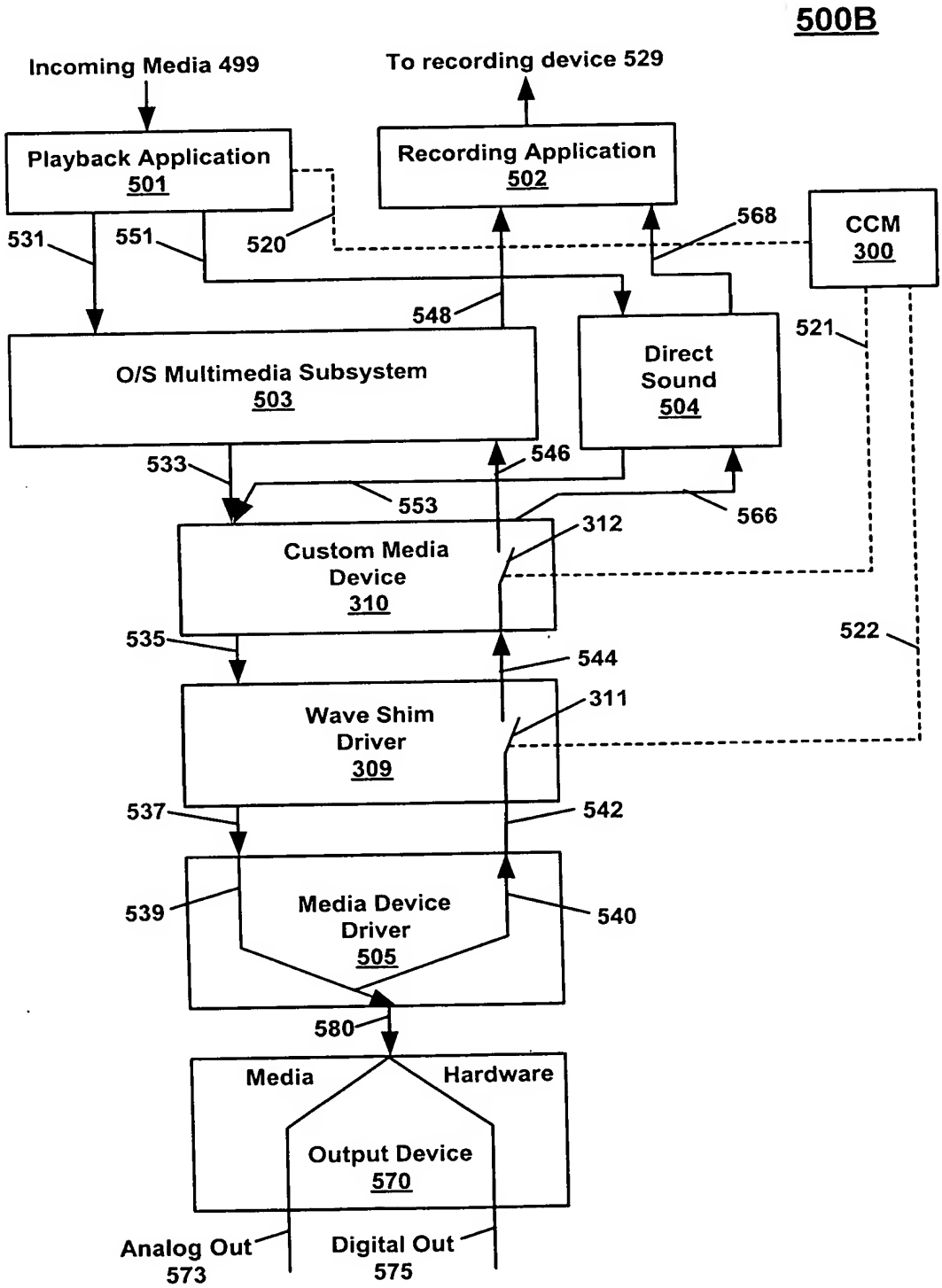
500B
Incoming Media 499
To recording device 529
Playback Application 501
Recording Application 502
CCM 300
531
551
520
568
548
521
O/S Multimedia Subsystem 503
Direct Sound 504
533
546
553
566
312
Custom Media Device 310
535
544
522
311
Wave Shim Driver 309
537
542
539
Media Device Driver 505
540
580
Media
Hardware
Output Device 570
Analog Out 573
Digital Out 575

FIG. 5B

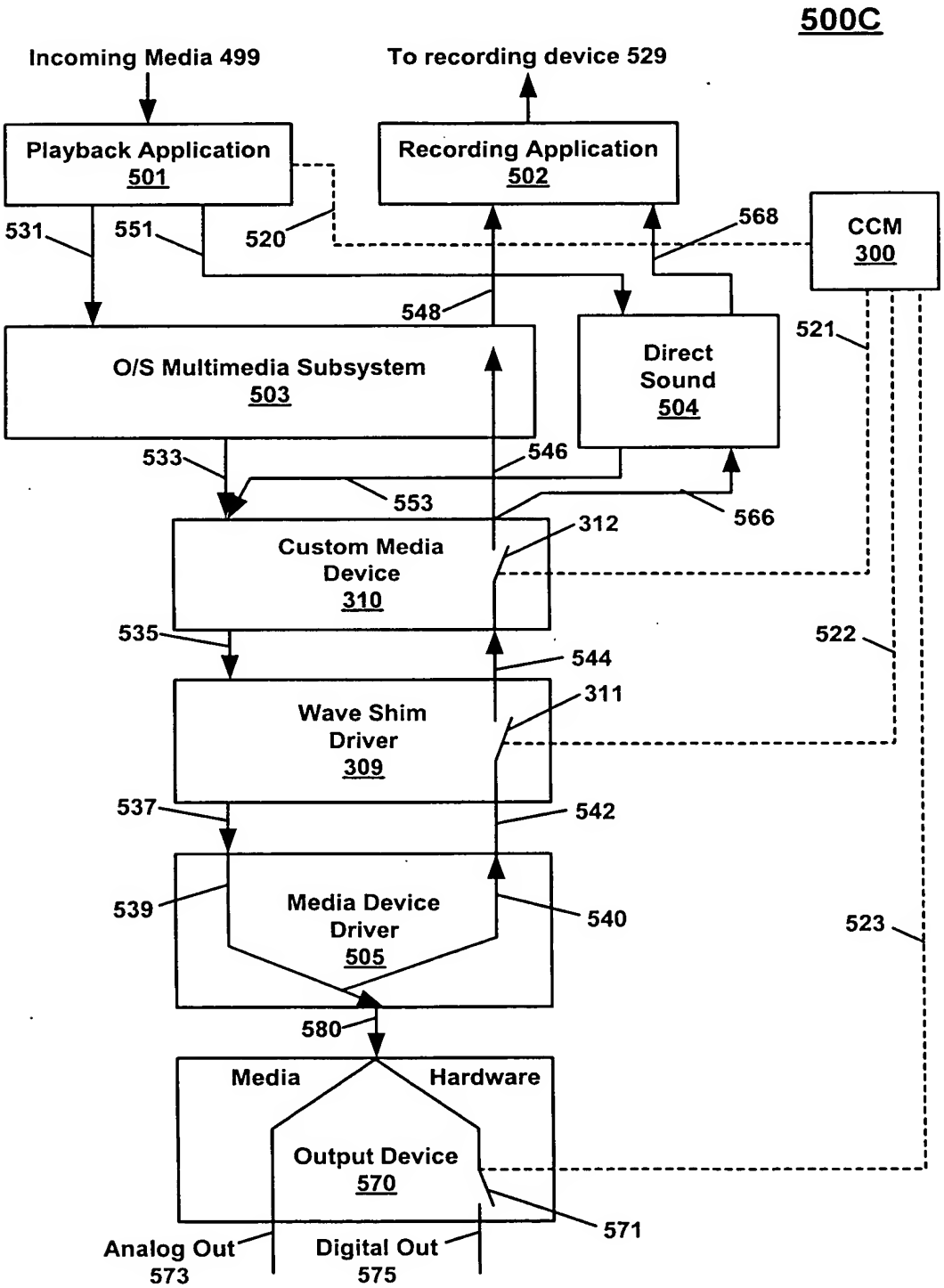
500C
Incoming Media 499
To recording device 529
Playback Application 501
Recording Application 502
CCM 300
531
551
520
568
548
521
O/S Multimedia Subsystem 503
Direct Sound 504
533
546
553
566
312
Custom Media Device 310
535
522
544
311
Wave Shim Driver 309
537
542
539
Media Device Driver 505
540
523
580
Media
Hardware
Output Device 570
571
Analog Out 573
Digital Out 575

FIG. 5C

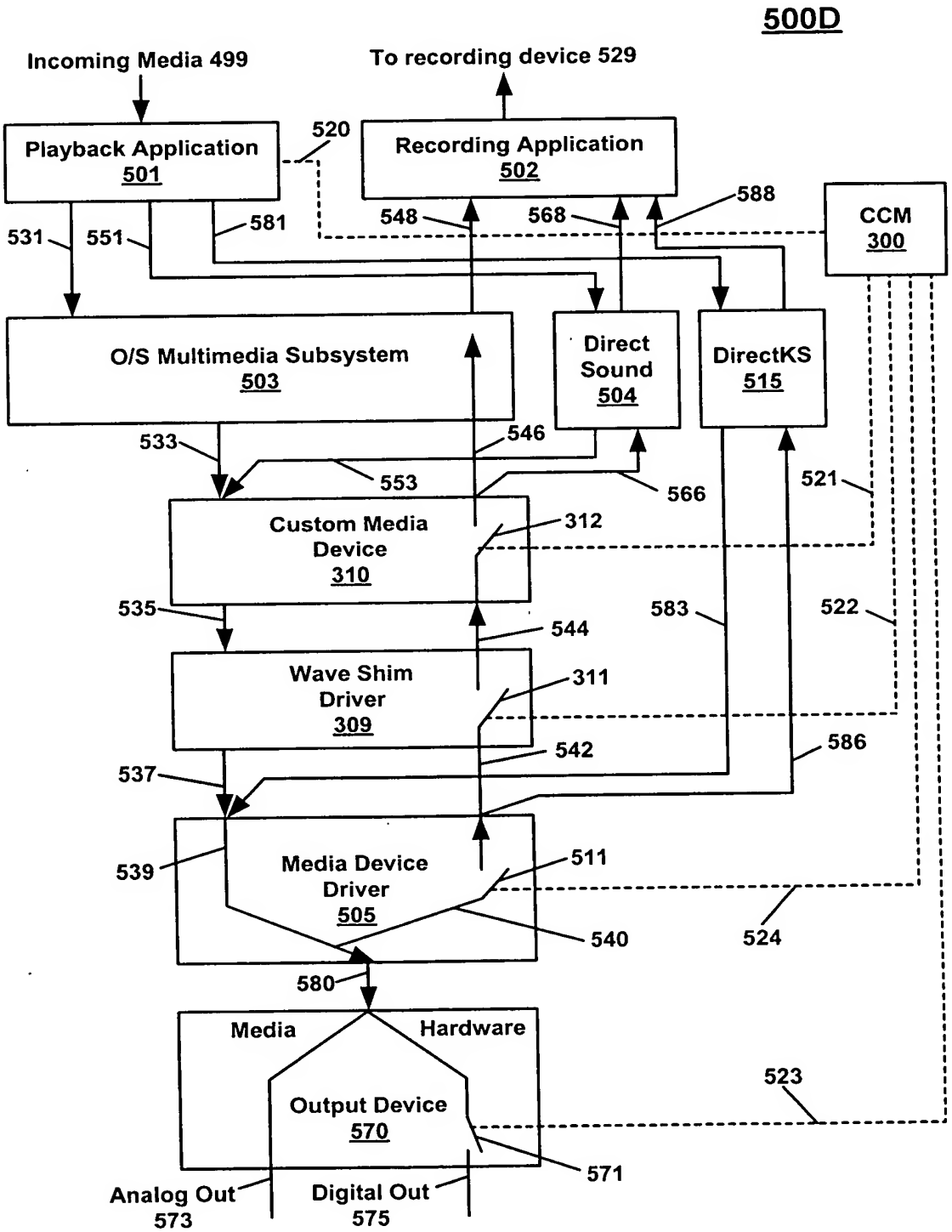
500D
Incoming Media 499
To recording device 529
Playback Application 501
520
Recording Application 502
588
CCM 300
531
551
581
548
568
O/S Multimedia Subsystem 503
Direct Sound 504
DirectKS 515
533
546
553
566
521
Custom Media Device 310
312
535
583
522
544
Wave Shim Driver 309
311
542
586
537
539
Media Device Driver 505
511
540
524
580
Media
Hardware
Output Device 570
523
571
Analog Out 573
Digital Out 575

FIG. 5D

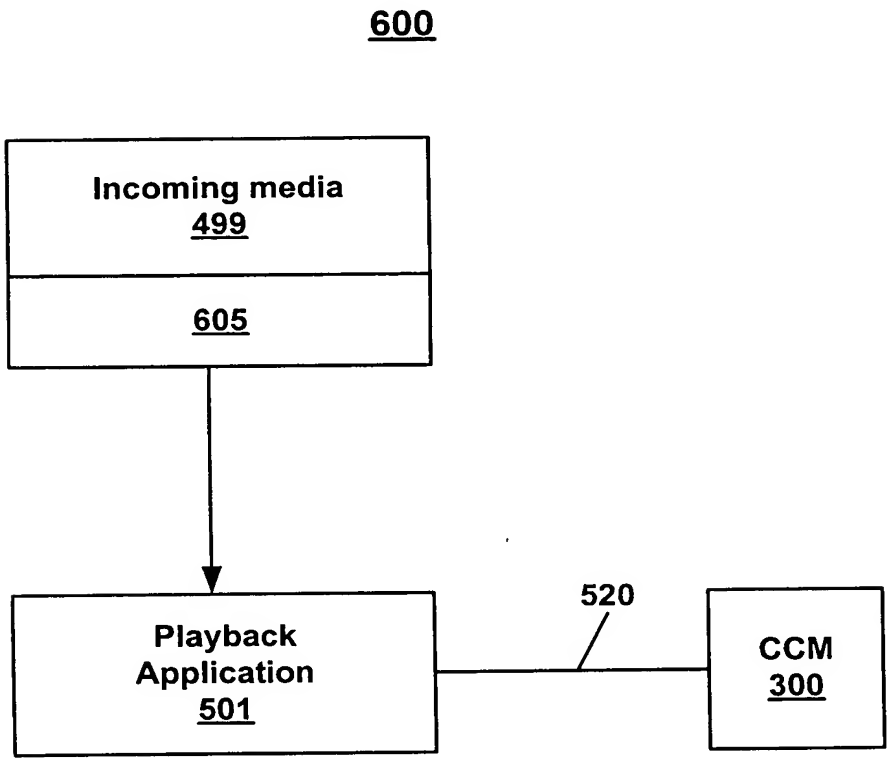
600
Incoming media
499
605
Playback
Application
501
520
CCM
300

FIG. 6A

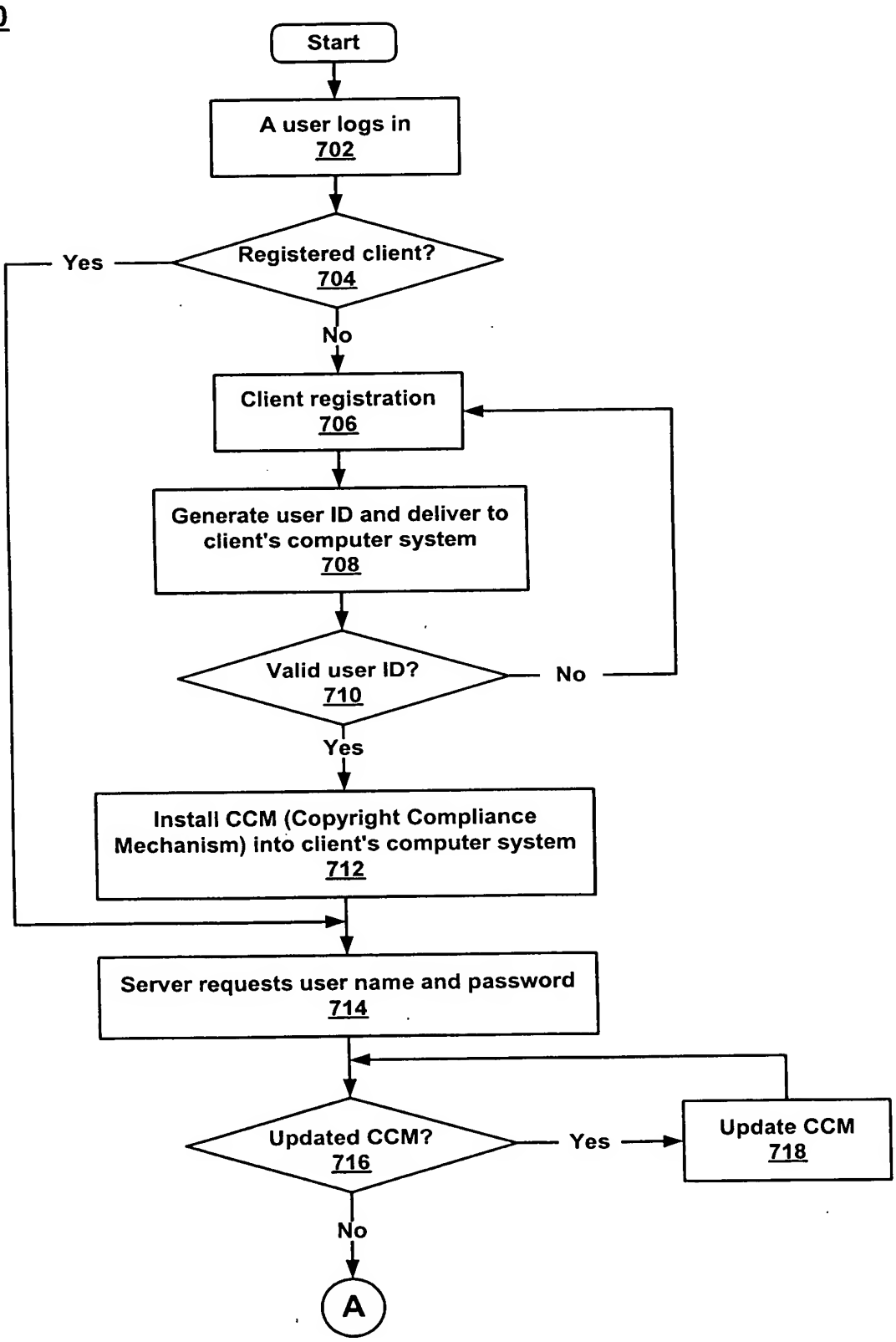
700
Start
A user logs in
702
Registered client?
704
Yes
No
Client registration
706
Generate user ID and deliver to client's computer system
708
Valid user ID?
710
No
Yes
Install CCM (Copyright Compliance Mechanism) into client's computer system
712
Server requests user name and password
714
Updated CCM?
716
Yes
Update CCM
718
No
A

FIG. 7A

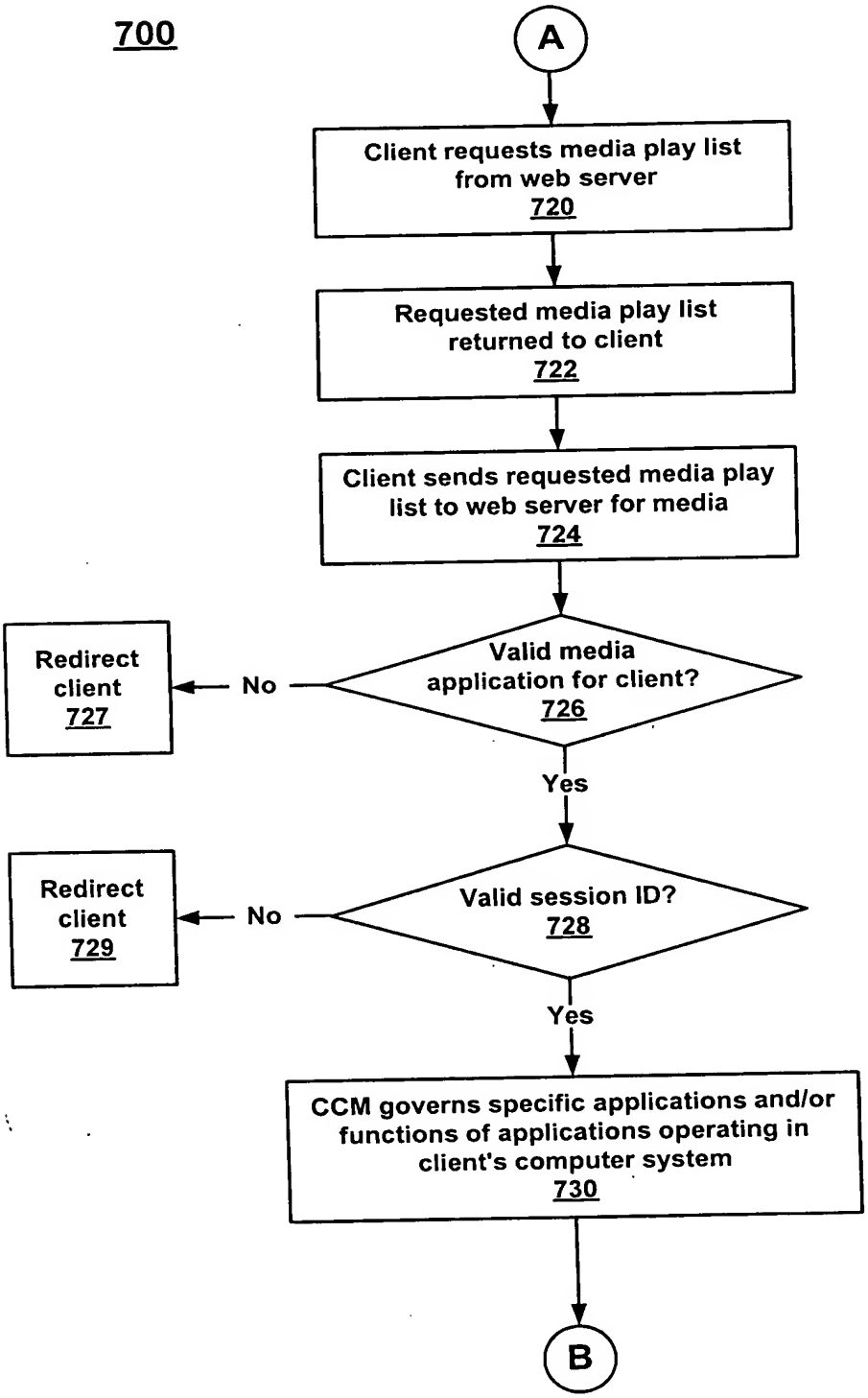
700
A
Client requests media play list from web server
720
Requested media play list returned to client
722
Client sends requested media play list to web server for media
724
Valid media application for client?
726
No
Redirect client
727
Yes
Valid session ID?
728
No
Redirect client
729
Yes
CCM governs specific applications and/or functions of applications operating in client's computer system
730
B

FIG. 7B

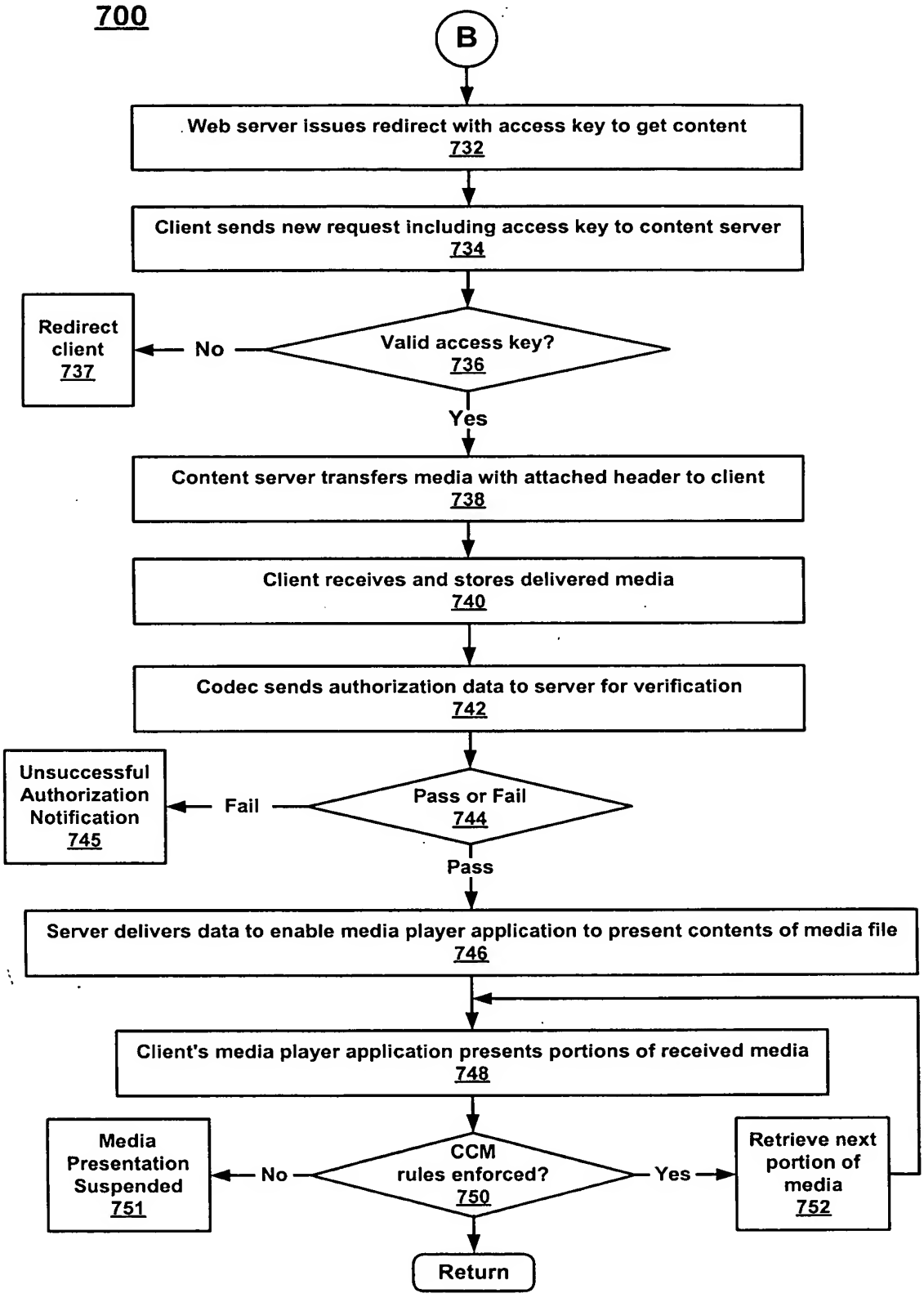
700
B
Web server issues redirect with access key to get content
732
Client sends new request including access key to content server
734
Redirect client
737
No
Valid access key?
736
Yes
Content server transfers media with attached header to client
738
Client receives and stores delivered media
740
Codec sends authorization data to server for verification
742
Unsuccessful Authorization Notification
745
Fail
Pass or Fail
744
Pass
Server delivers data to enable media player application to present contents of media file
746
Client's media player application presents portions of received media
748
Media Presentation Suspended
751
No
CCM rules enforced?
750
Yes
Retrieve next portion of media
752
Return

FIG. 7C

BEST AVAILABLE COPY

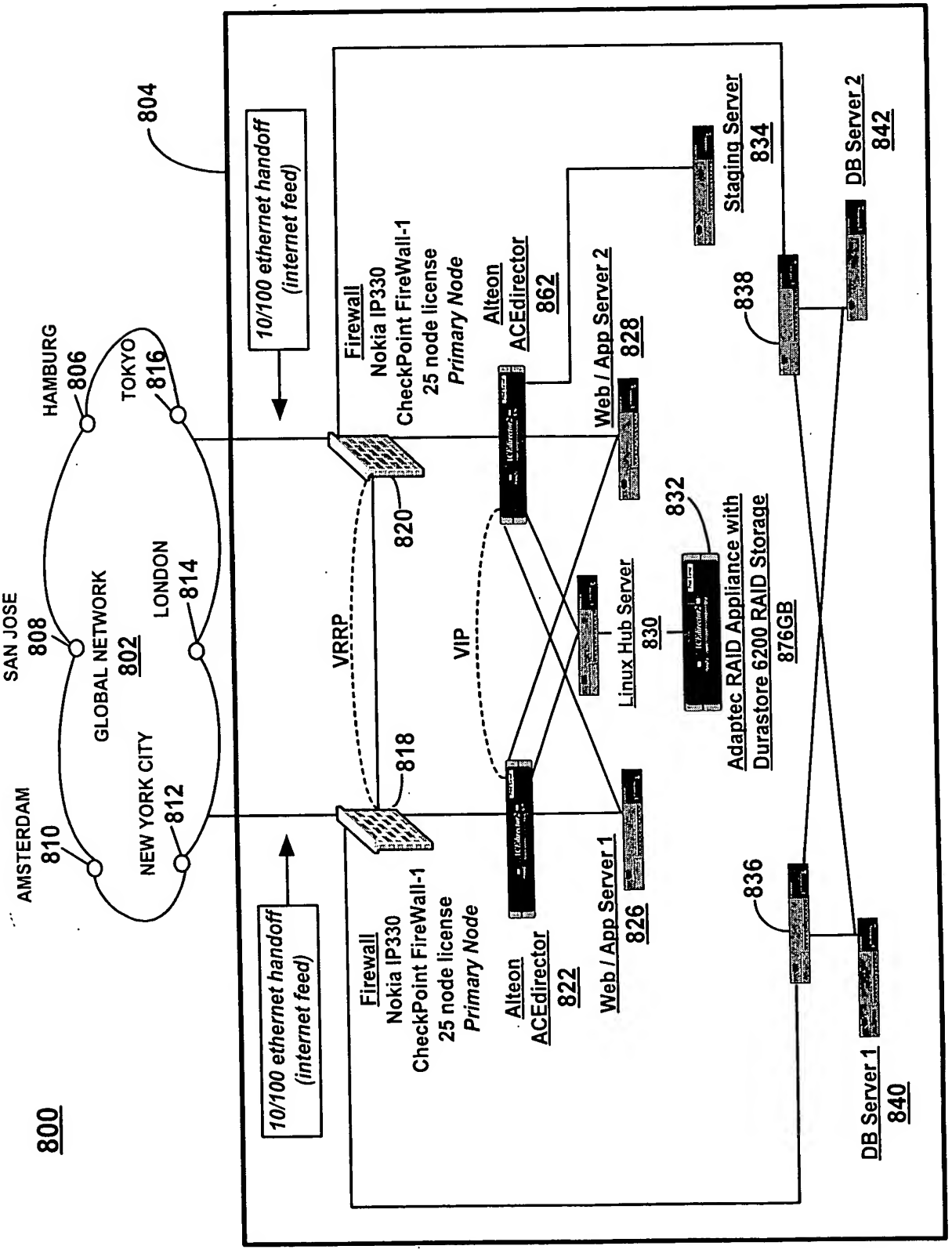

FIG. 8

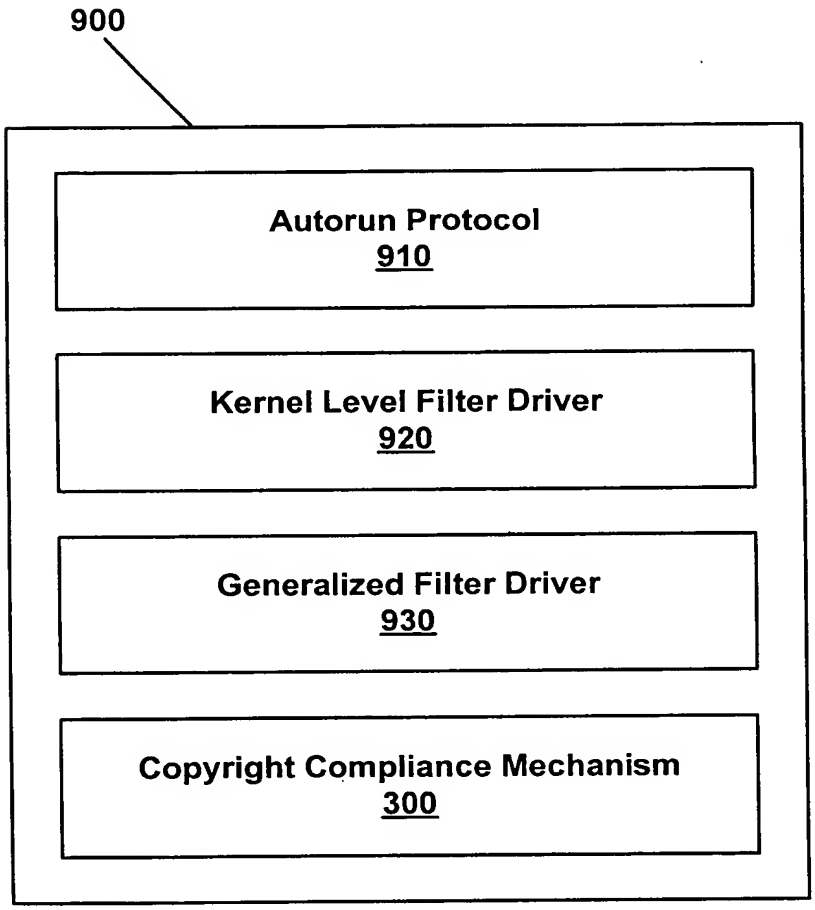
900
Autorun Protocol
910
Kernel Level Filter Driver
920
Generalized Filter Driver
930
Copyright Compliance Mechanism
300

FIG. 9

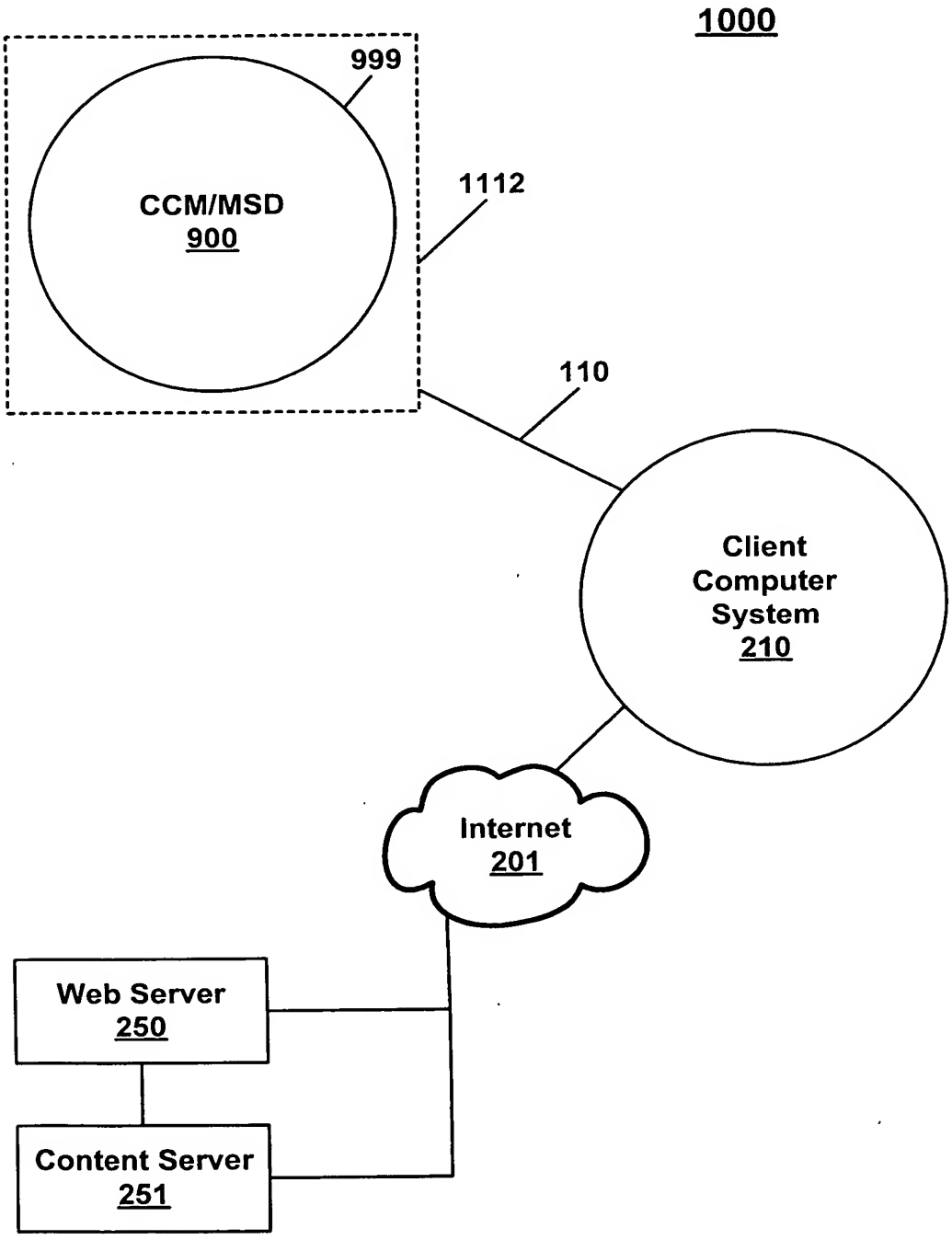
1000
999
CCM/MSD
900
1112
110
Client
Computer
System
210
Internet
201
Web Server
250
Content Server
251

FIG. 10

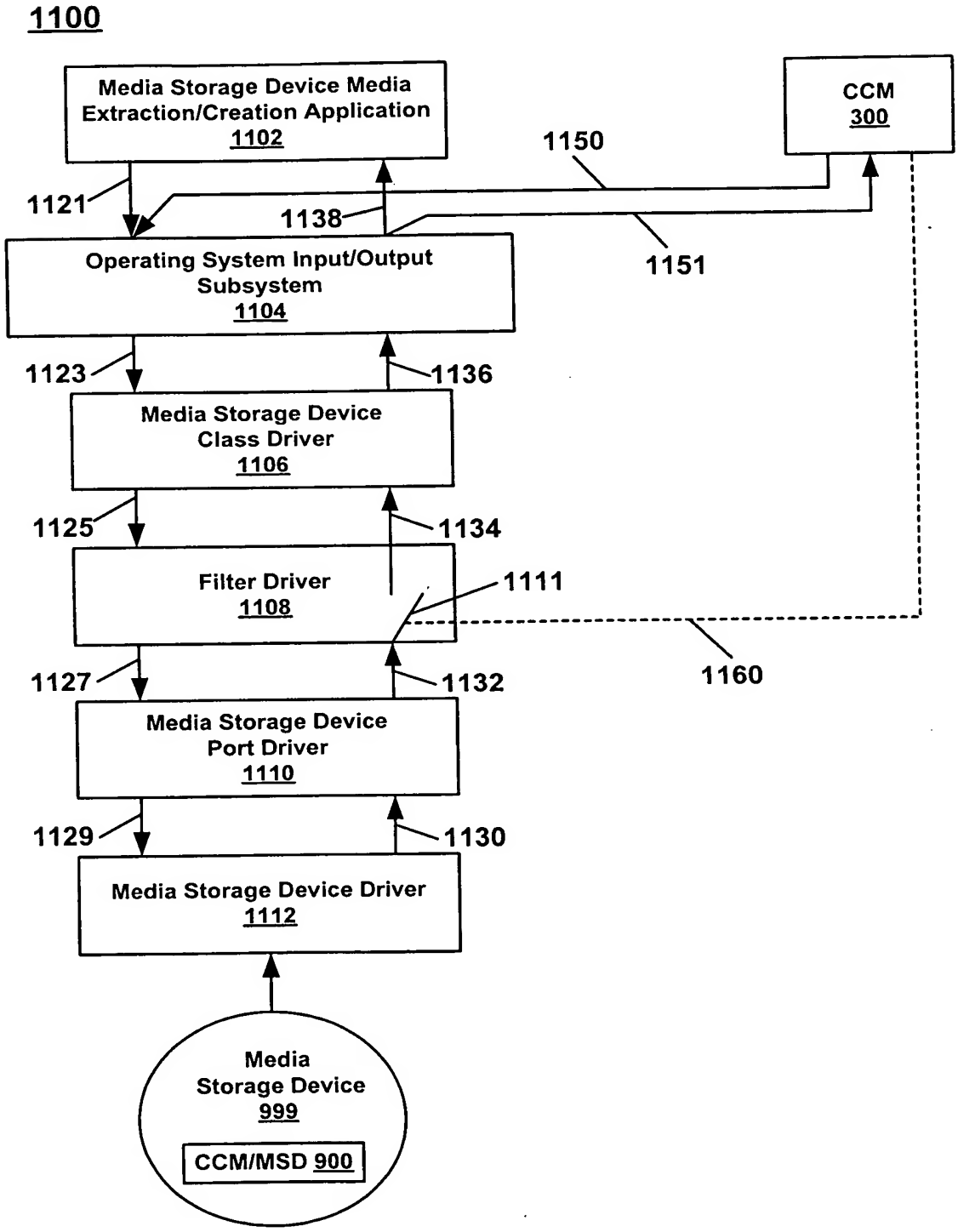
1100
Media Storage Device Media Extraction/Creation Application 1102
CCM 300
1150
1121
1138
1151
Operating System Input/Output Subsystem 1104
1123
1136
Media Storage Device Class Driver 1106
1125
1134
Filter Driver 1108
1111
1160
1127
1132
Media Storage Device Port Driver 1110
1129
1130
Media Storage Device Driver 1112
Media Storage Device 999
CCM/MSD 900

FIG. 11

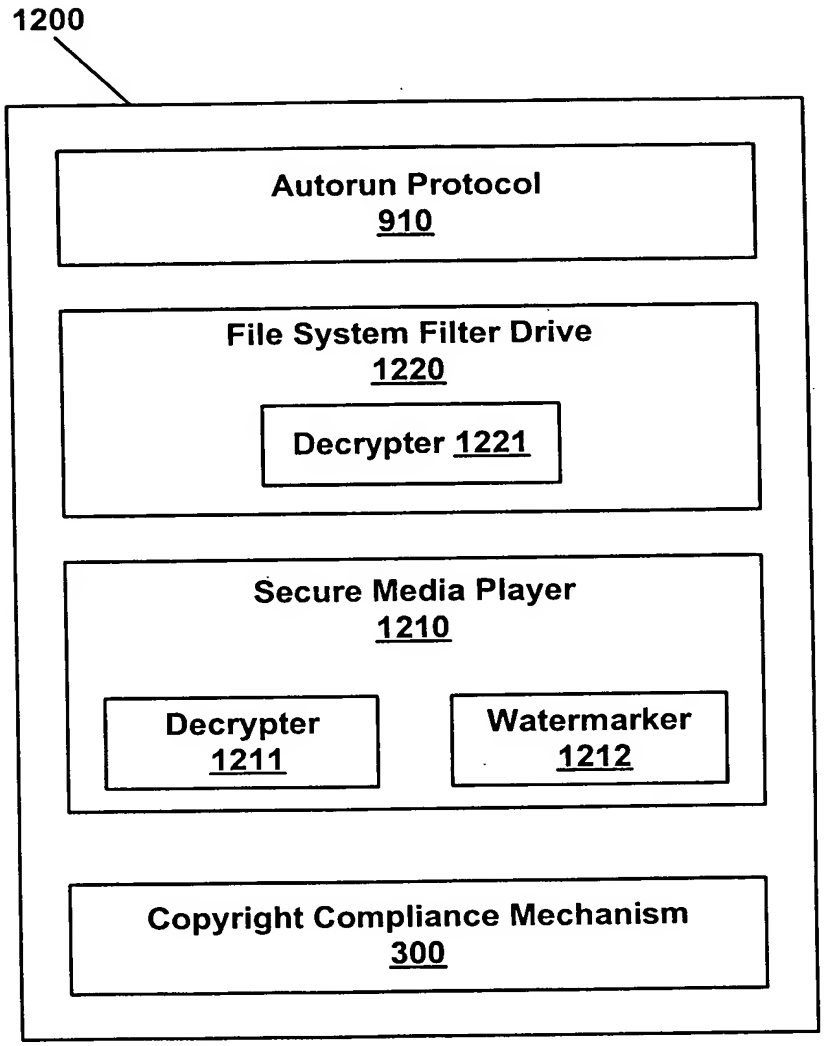
1200
Autorun Protocol
910
File System Filter Drive
1220
Decrypter 1221
Secure Media Player
1210
Decrypter
1211
Watermarker
1212
Copyright Compliance Mechanism
300

FIG. 12

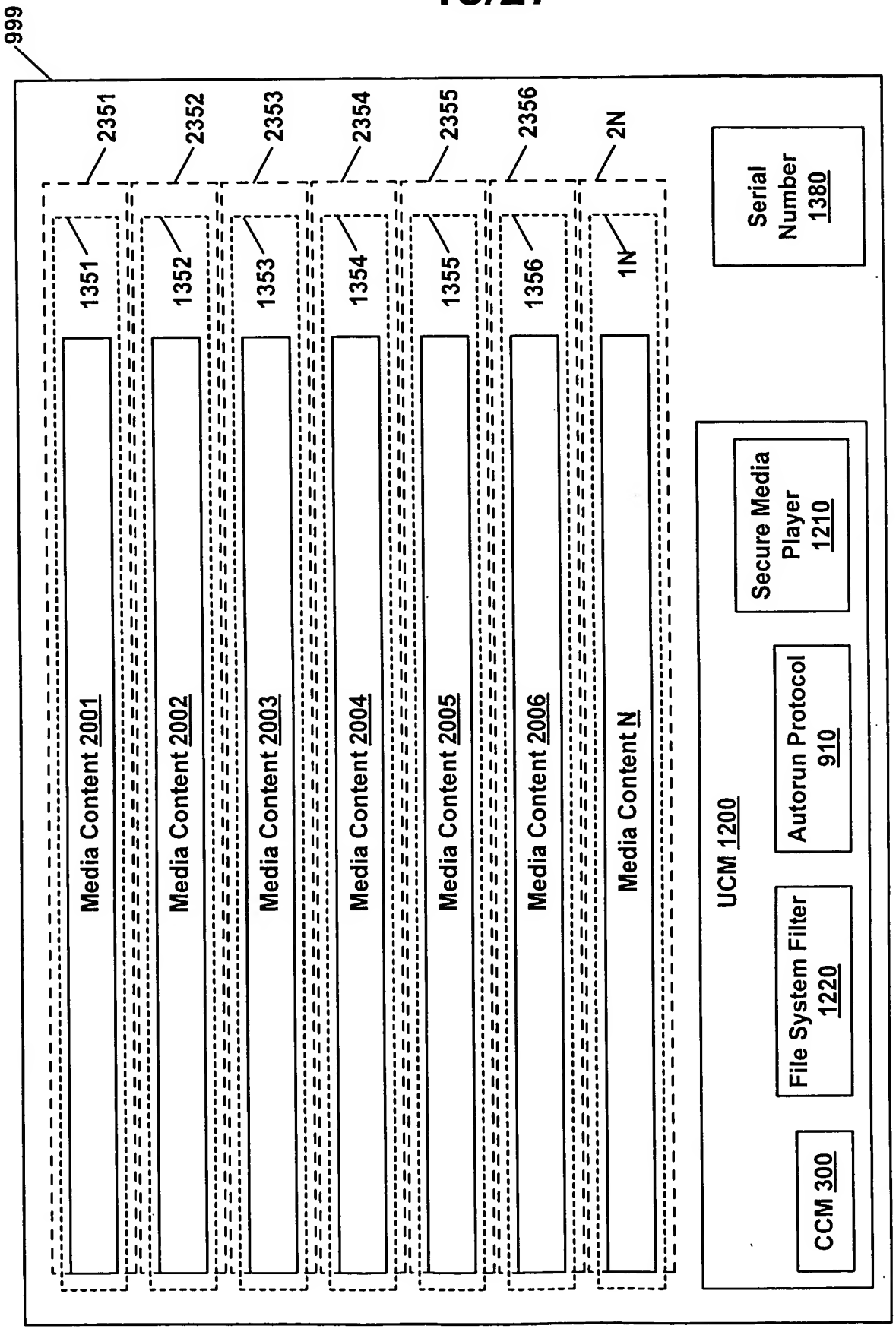
999
2351
2352
2353
2354
2355
2356
2N
1351
1352
1353
1354
1355
1356
1N
Media Content 2001
Media Content 2002
Media Content 2003
Media Content 2004
Media Content 2005
Media Content 2006
Media Content N
Serial Number 1380
UCM 1200
Secure Media Player 1210
Autorun Protocol 910
File System Filter 1220
CCM 300

FIG. 13

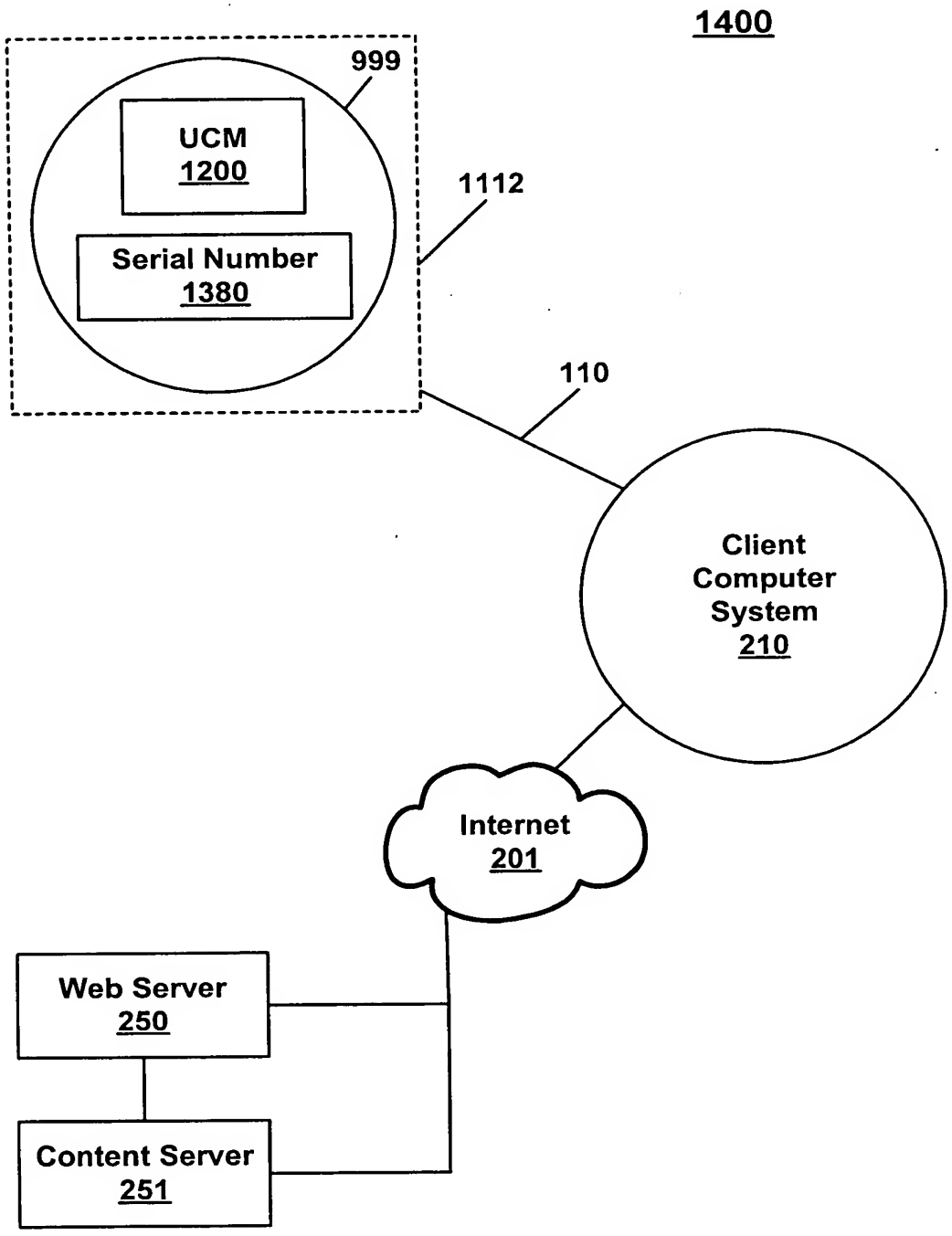
1400
999
UCM
1200
Serial Number
1380
1112
110
Client
Computer
System
210
Internet
201
Web Server
250
Content Server
251

FIG. 14

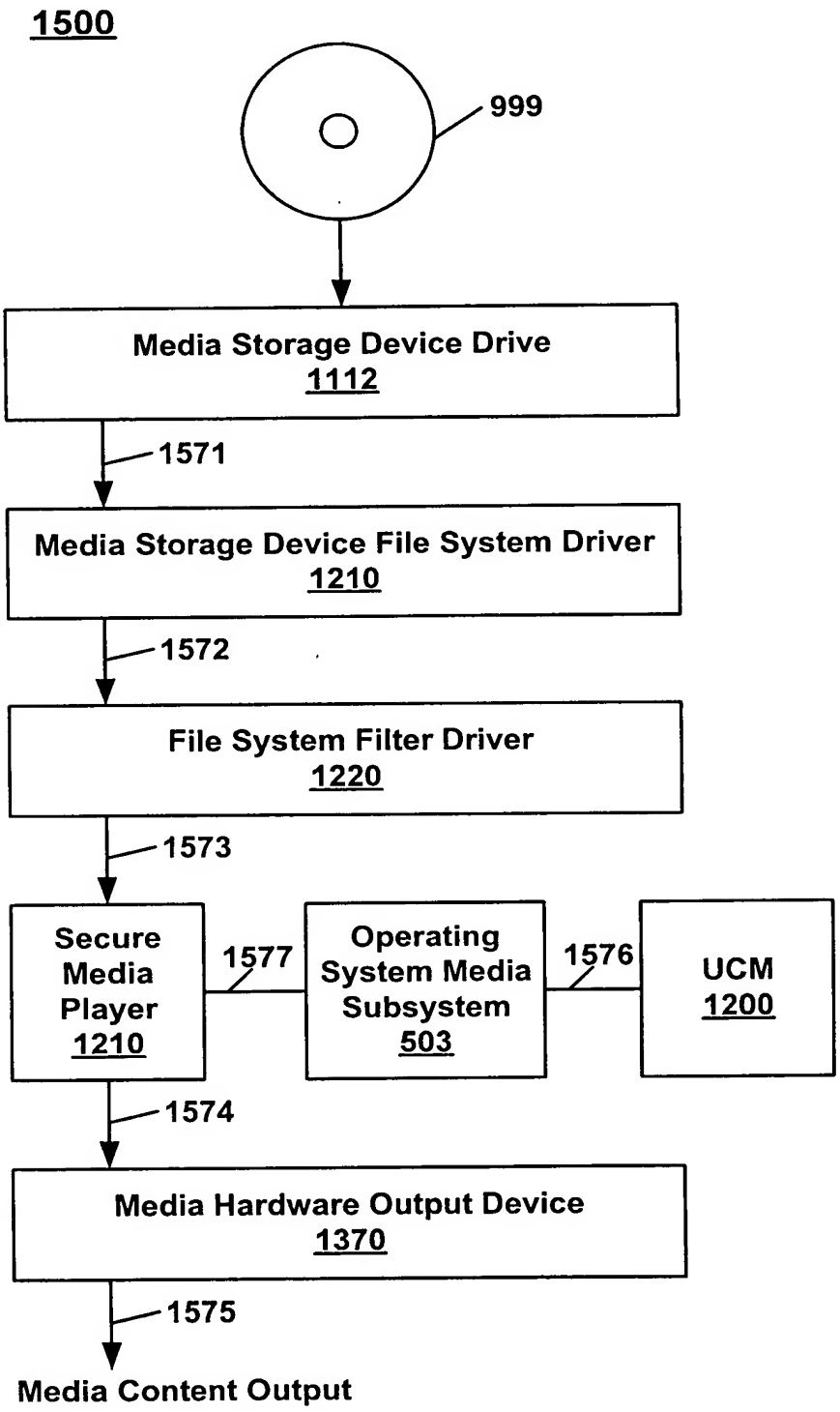
1500
999
Media Storage Device Drive
1112
1571
Media Storage Device File System Driver
1210
1572
File System Filter Driver
1220
1573
Secure Media Player
1210
1577
Operating System Media Subsystem
503
1576
UCM
1200
1574
Media Hardware Output Device
1370
1575
Media Content Output

FIG. 15

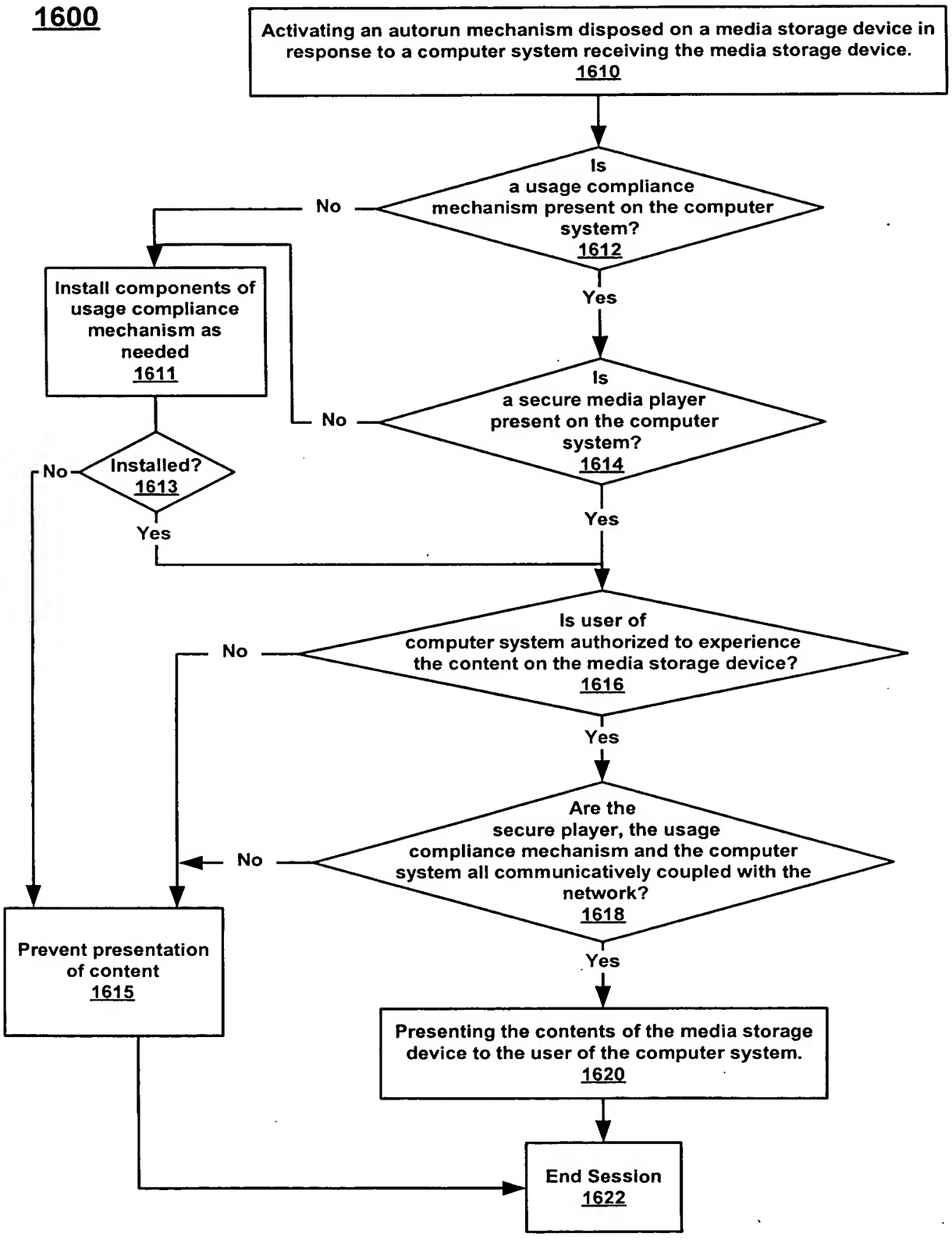
1600
Activating an autorun mechanism disposed on a media storage device in response to a computer system receiving the media storage device.
1610
Is a usage compliance mechanism present on the computer system?
1612
No
Yes
Install components of usage compliance mechanism as needed
1611
Installed?
1613
No
Yes
Is a secure media player present on the computer system?
1614
No
Yes
Is user of computer system authorized to experience the content on the media storage device?
1616
No
Yes
Are the secure player, the usage compliance mechanism and the computer system all communicatively coupled with the network?
1618
No
Yes
Prevent presentation of content
1615
Presenting the contents of the media storage device to the user of the computer system.
1620
End Session
1622

FIG. 16

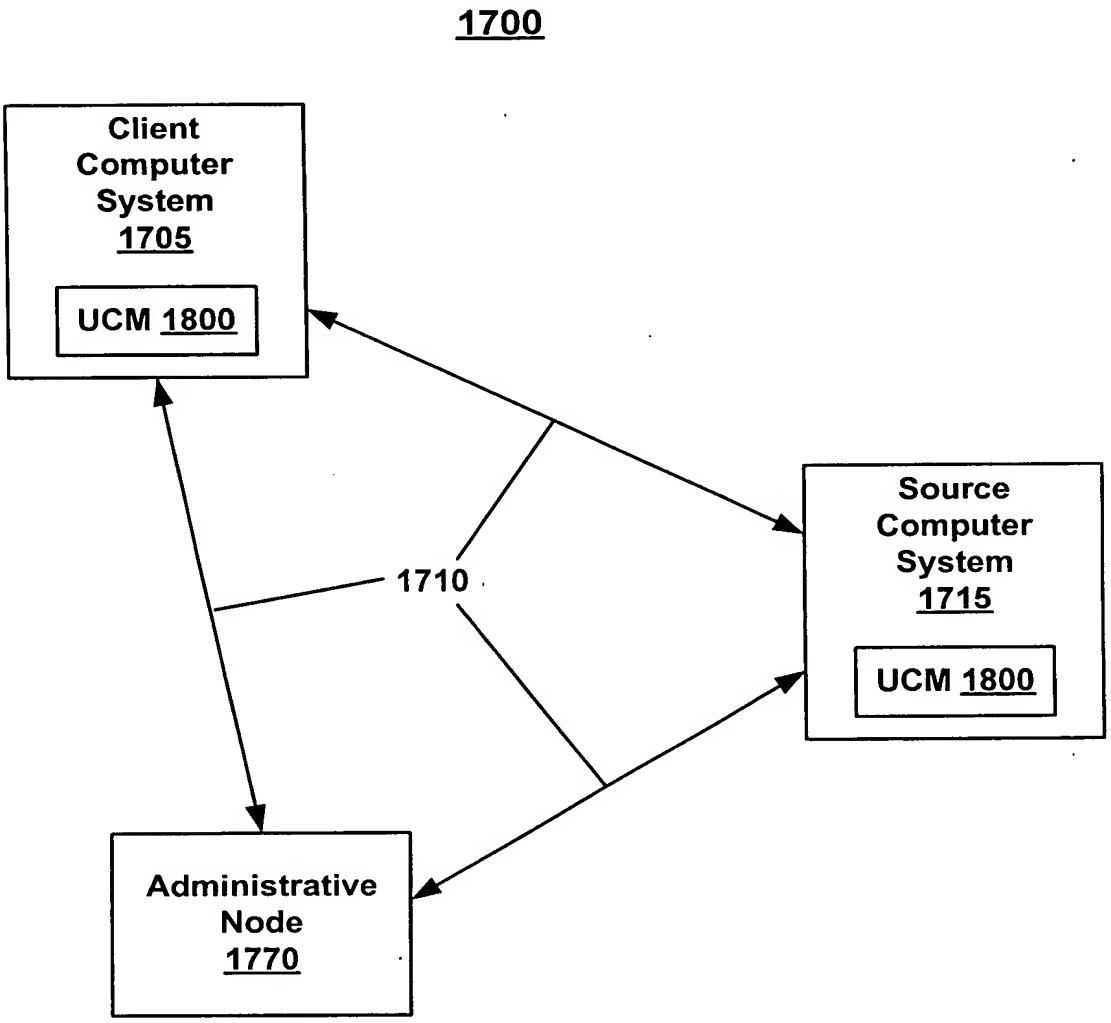
1700
Client Computer System 1705
UCM 1800
Source Computer System 1715
UCM 1800
1710
Administrative Node 1770

FIG. 17

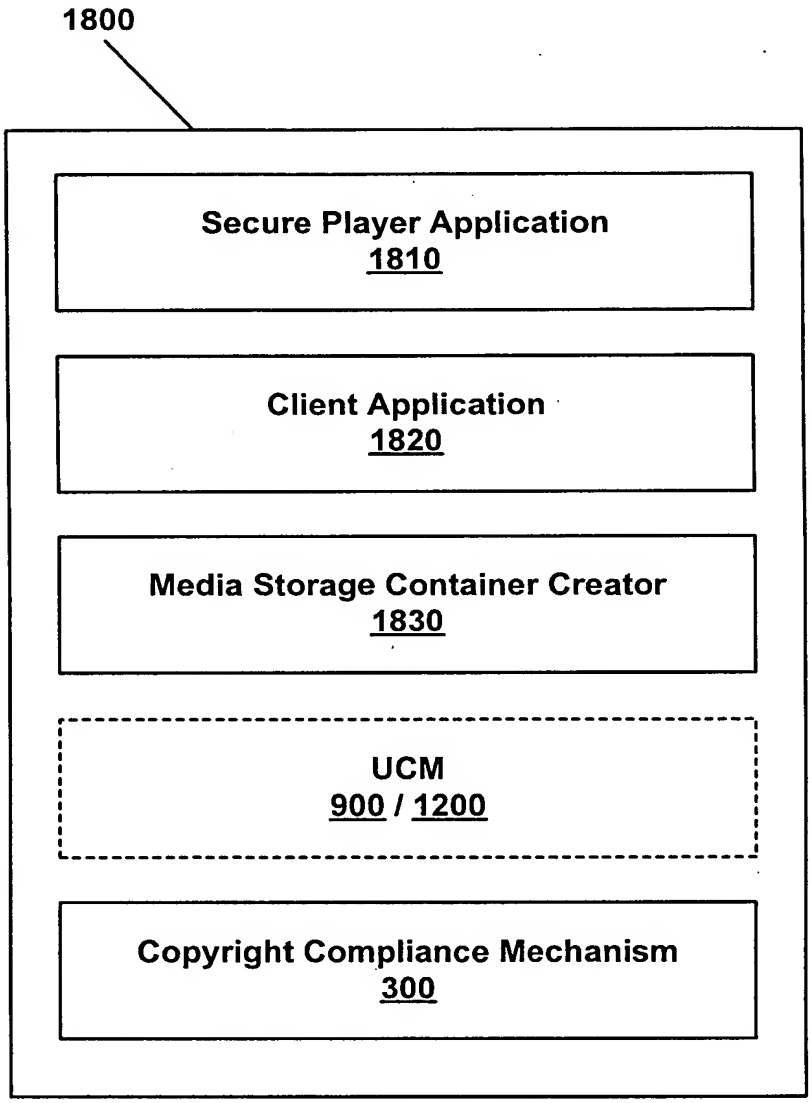
1800
Secure Player Application
1810
Client Application
1820
Media Storage Container Creator
1830
UCM
900 / 1200
Copyright Compliance Mechanism
300

FIG. 18

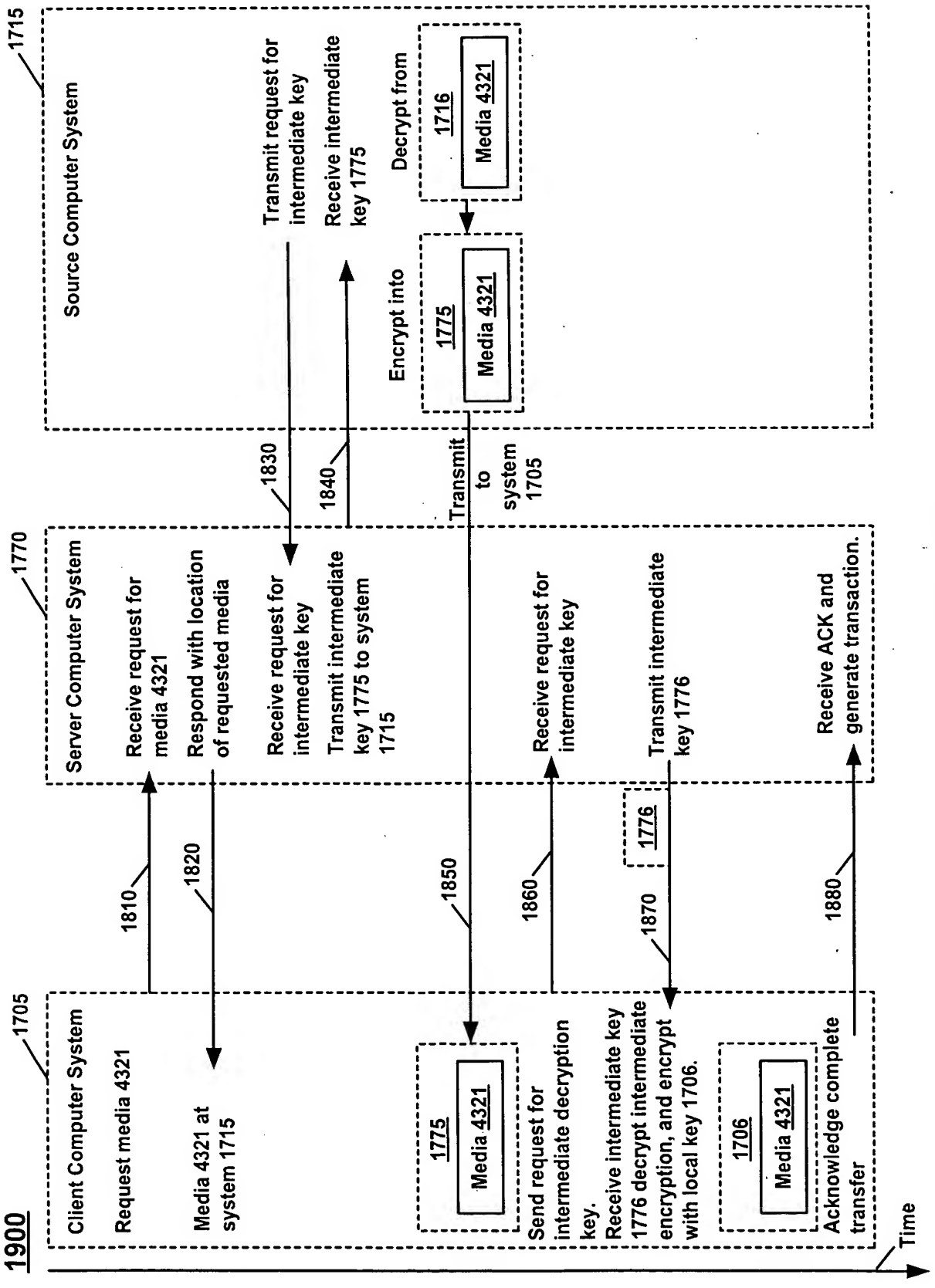
1900
1705
Client Computer System
Request media 4321
Media 4321 at system 1715
1775
Media 4321
1706
Media 4321
Send request for intermediate decryption key.
Receive intermediate key 1776 decrypt intermediate encryption, and encrypt with local key 1706.
Acknowledge complete transfer
Time
1770
Server Computer System
Receive request for media 4321
Respond with location of requested media
Receive request for intermediate key
Transmit intermediate key 1775 to system 1715
Receive request for intermediate key
Transmit intermediate key 1776
Receive ACK and generate transaction.
1776
1715
Source Computer System
Encrypt into
1775
Media 4321
Transmit request for intermediate key
Receive intermediate key 1775
Decrypt from
1716
Media 4321
1810
1820
1830
1840
Transmit to system 1705
1850
1860
1870
1880

FIG. 19

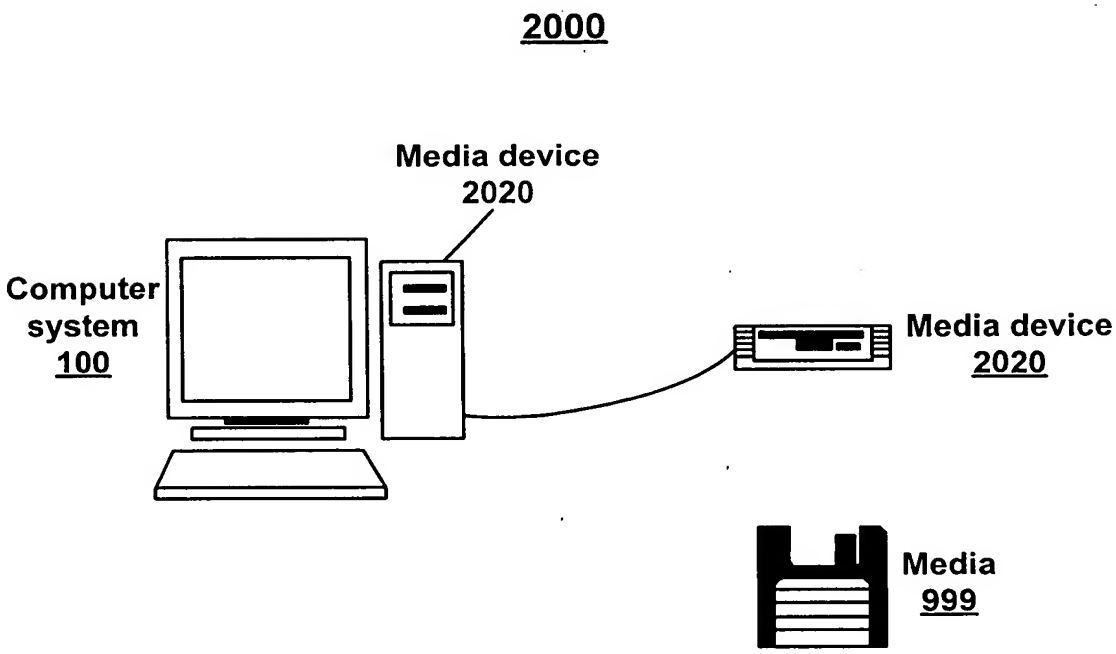
2000
Media device
2020
Computer
system
100
Media device
2020
Media
999

FIG. 20

2100

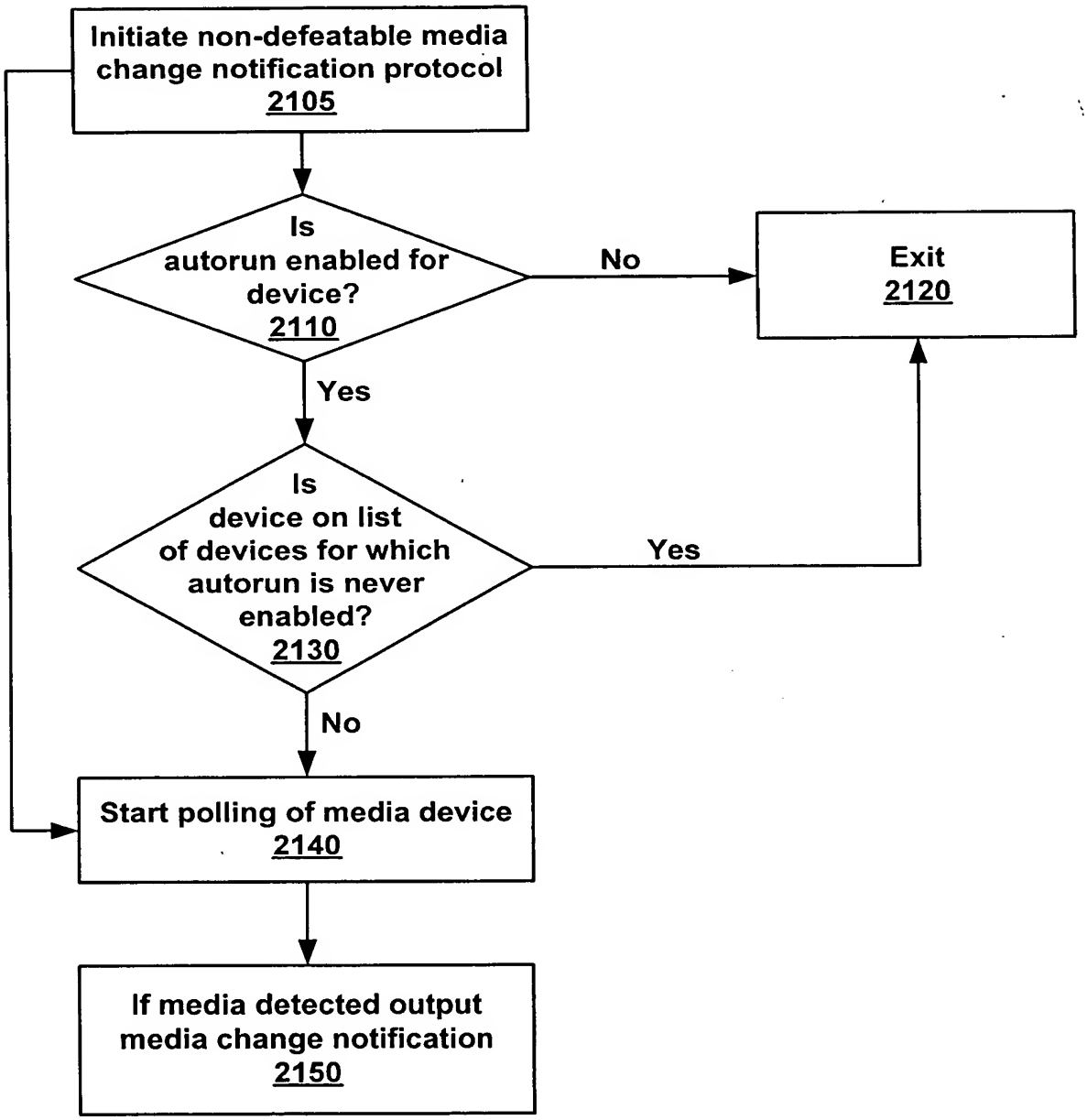
Initiate non-defeatable media change notification protocol
2105
Is autorun enabled for device?
2110
No
Exit
2120
Yes
Is device on list of devices for which autorun is never enabled?
2130
Yes
No
Start polling of media device
2140
If media detected output media change notification
2150

FIG. 21

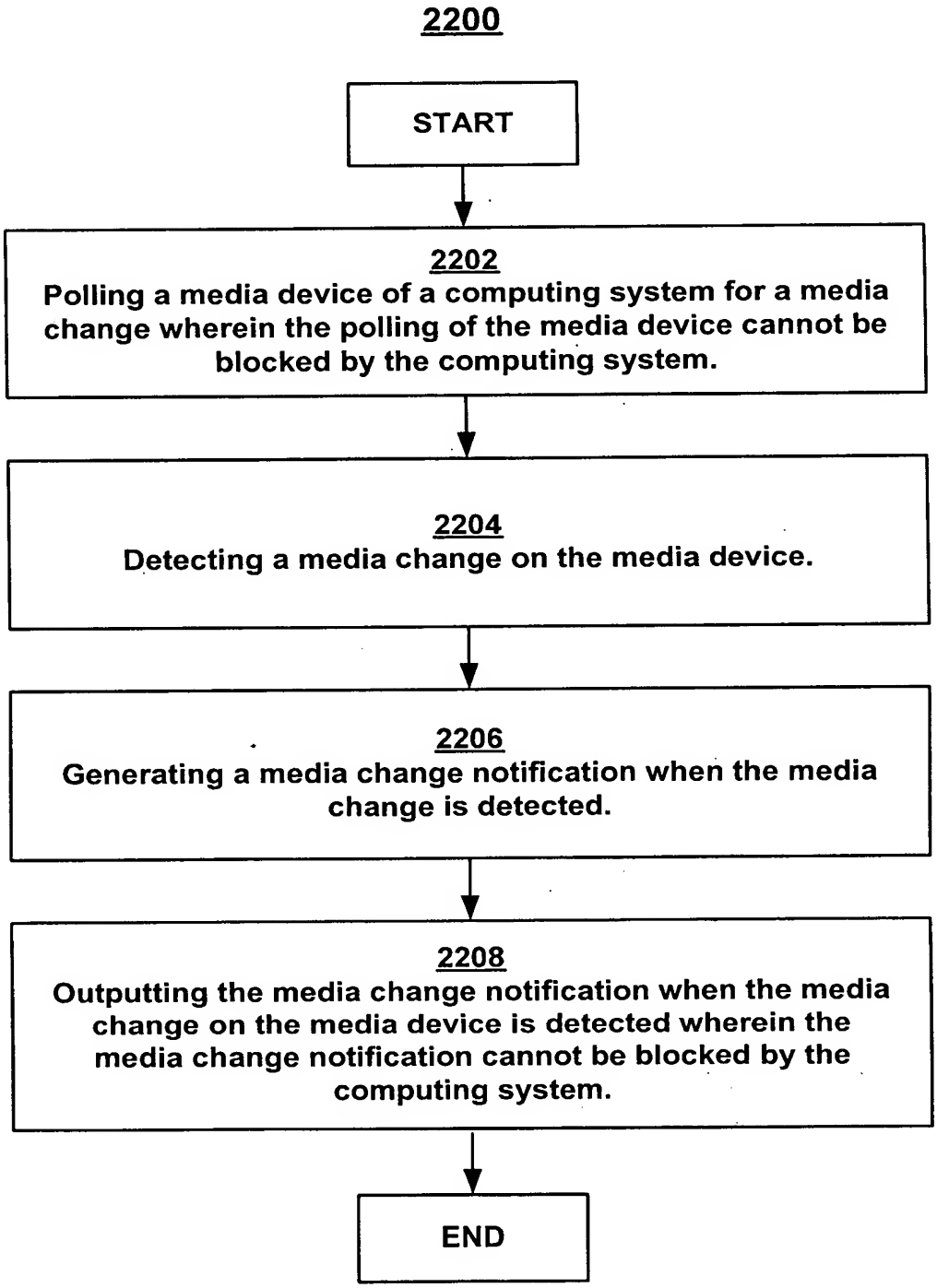
2200
START
2202
Polling a media device of a computing system for a media change wherein the polling of the media device cannot be blocked by the computing system.
2204
Detecting a media change on the media device.
2206
Generating a media change notification when the media change is detected.
2208
Outputting the media change notification when the media change on the media device is detected wherein the media change notification cannot be blocked by the computing system.
END

FIG. 22